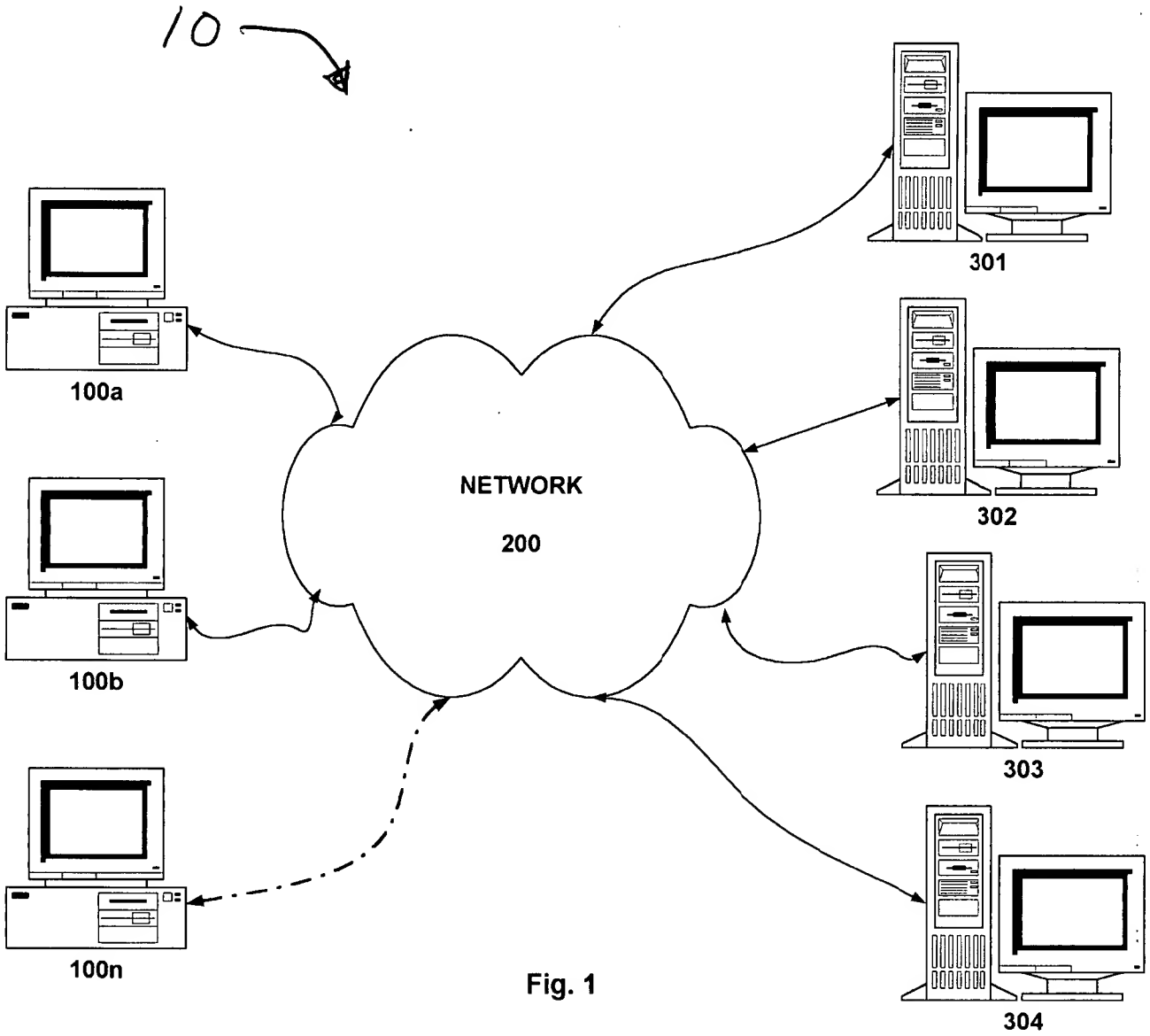

Fig. 1

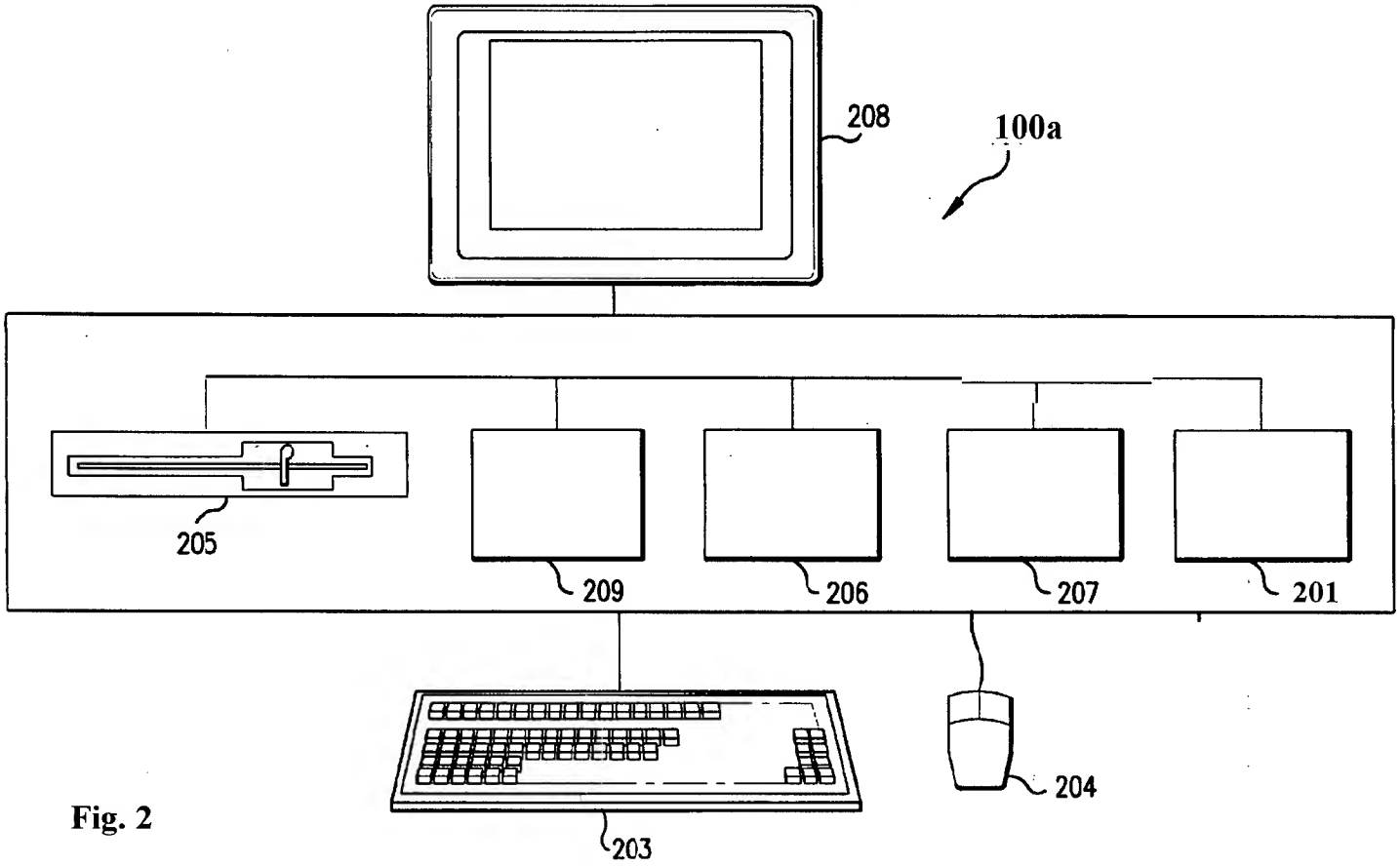

Fig. 2

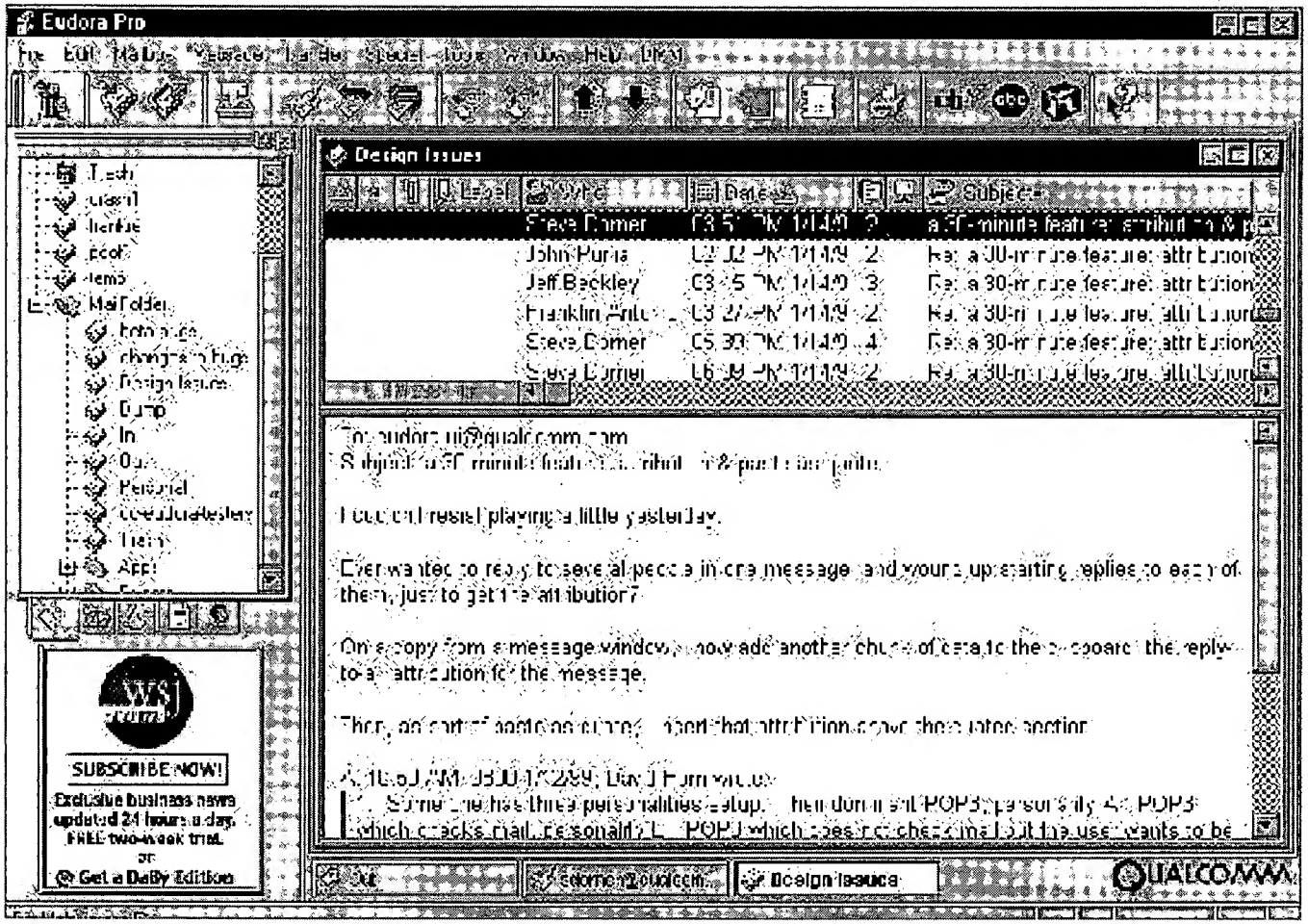
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Fig. 3A

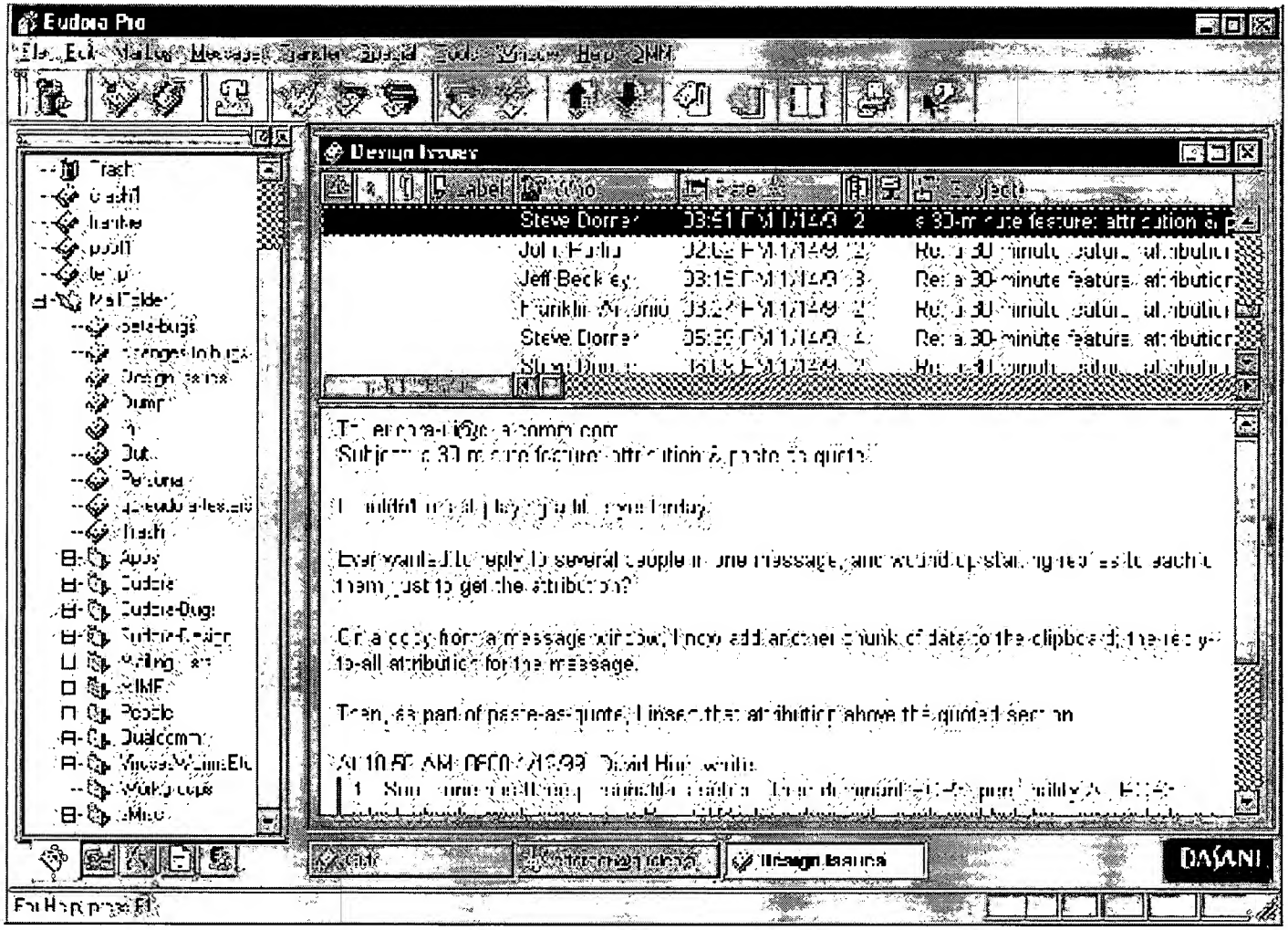

Eudora Pro
Design Issues
Steve Dorner
Jeff Beckley
Steve Dorner
DASANI

Fig. 3B

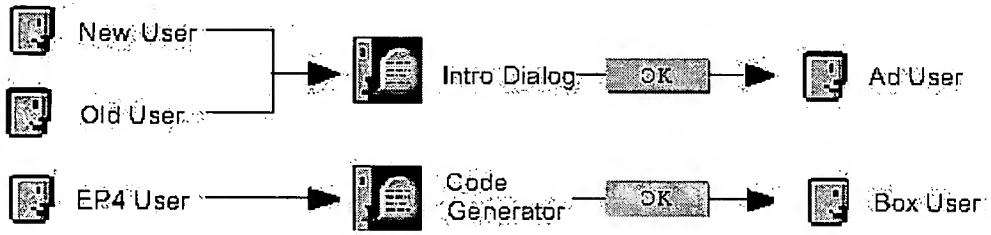


Fig. 4A

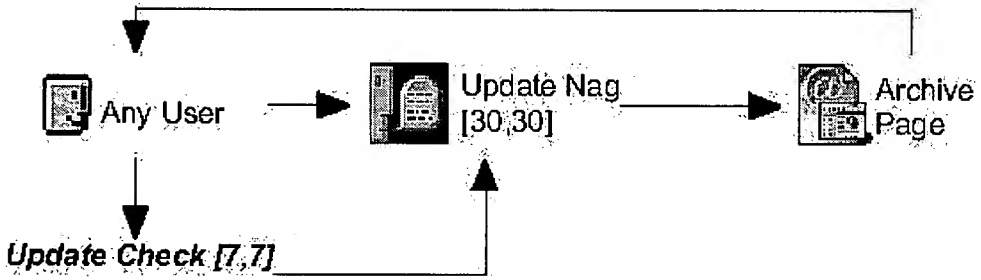


Fig. 7A

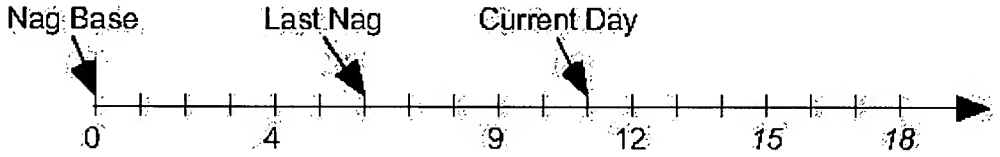


Fig. 11

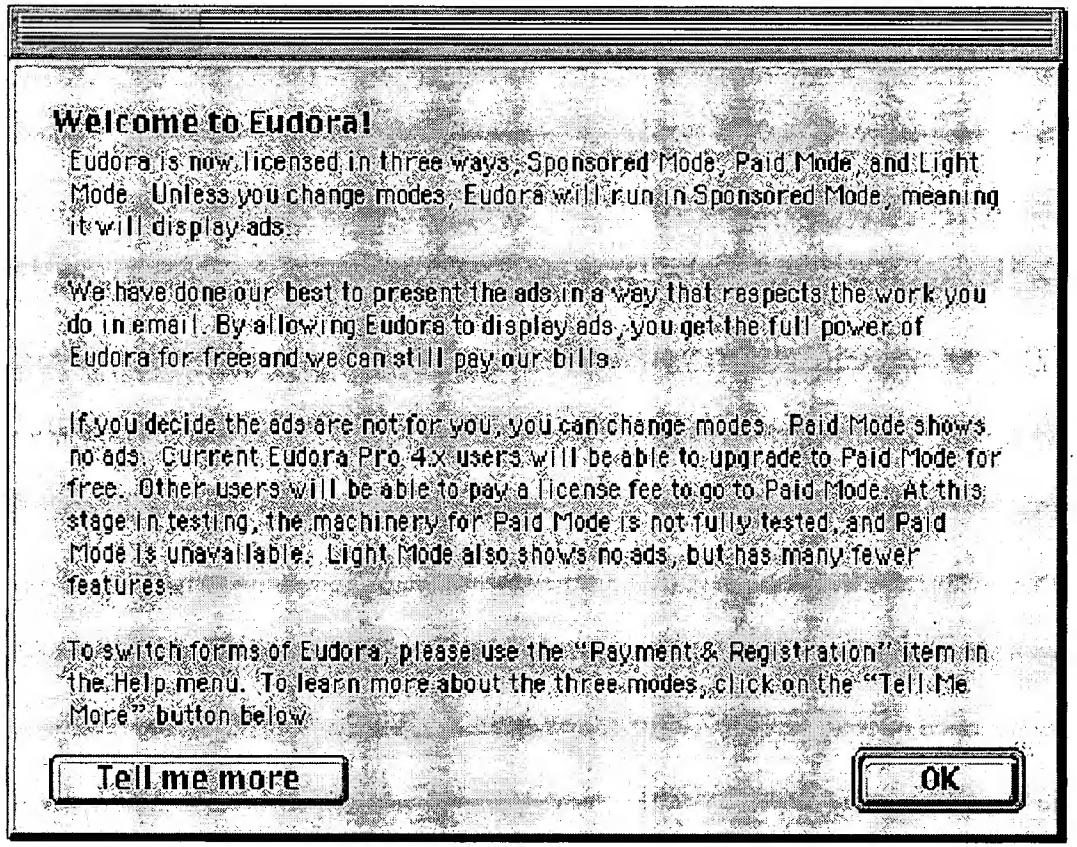


Fig. 4B

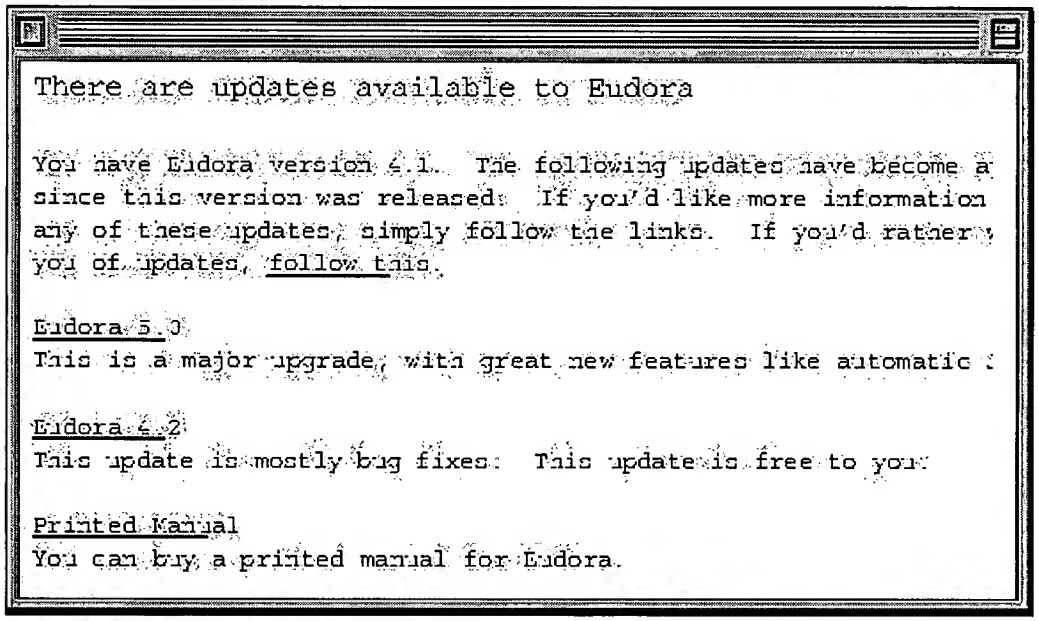

There are updates available to Eudora
You have Eudora version 4.1. The following updates have become a
since this version was released. If you'd like more information
any of these updates, simply follow the links. If you'd rather
you of updates, follow this.
Eudora 5.0
This is a major upgrade, with great new features like automatic
Eudora 4.2
This update is mostly bug fixes. This update is free to you
Printed Manual
You can buy a printed manual for Eudora.

Fig. 7B

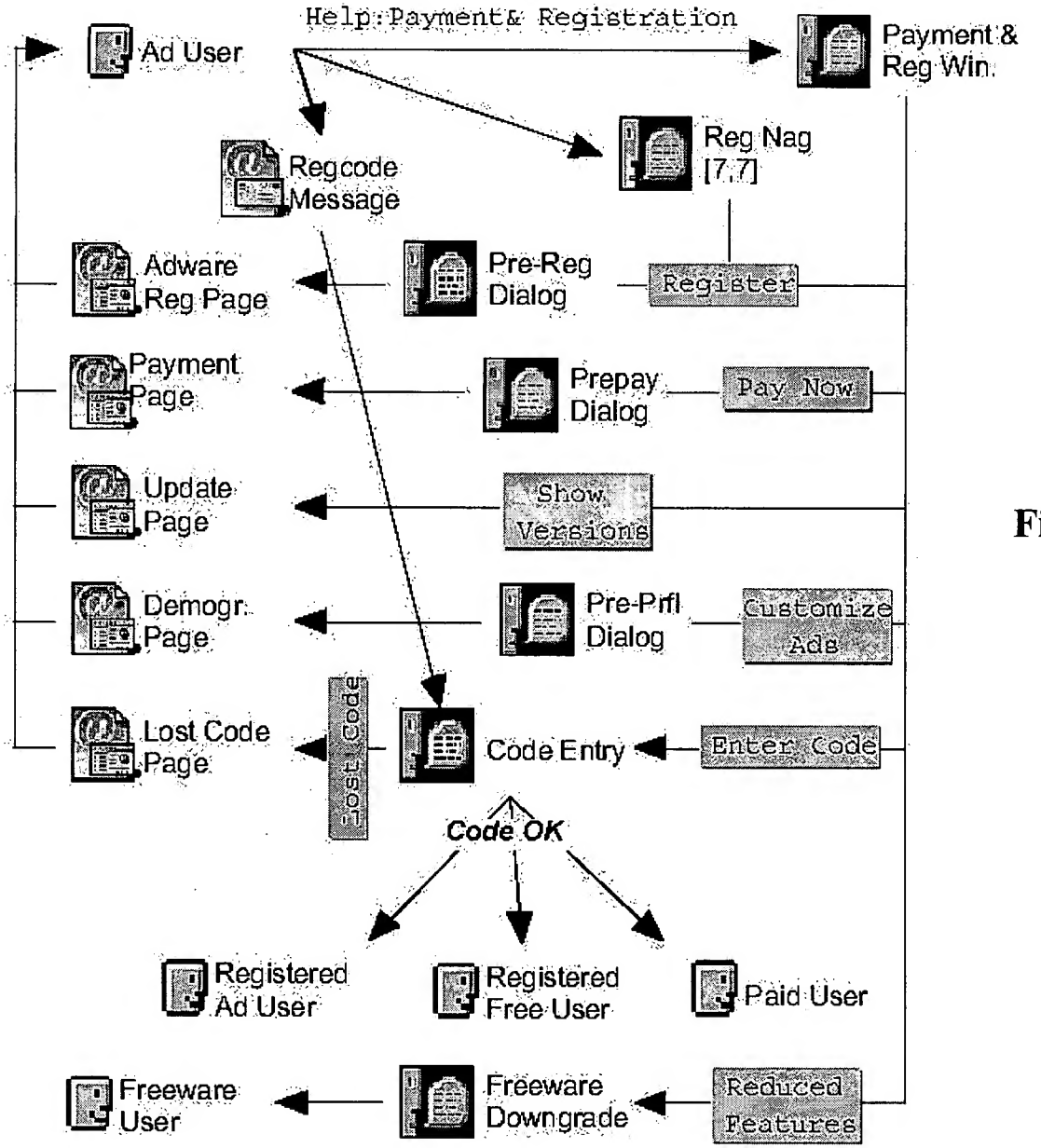

Help:Payment& Registration
Ad User
Payment & Reg Win.
Reg Nag [7.7]
Regcode Message
Adware Reg Page
Pre-Reg Dialog
Register
Payment Page
Prepay Dialog
Pay Now
Update Page
Show Versions
Demogr. Page
Pre-Prfl Dialog
Customize Ads
Lost Code Page
Lost Code
Code Entry
Enter Code
Code OK
Registered Ad User
Registered Free User
Paid User
Freeware User
Freeware Downgrade
Reduced Features

Fig. 5A

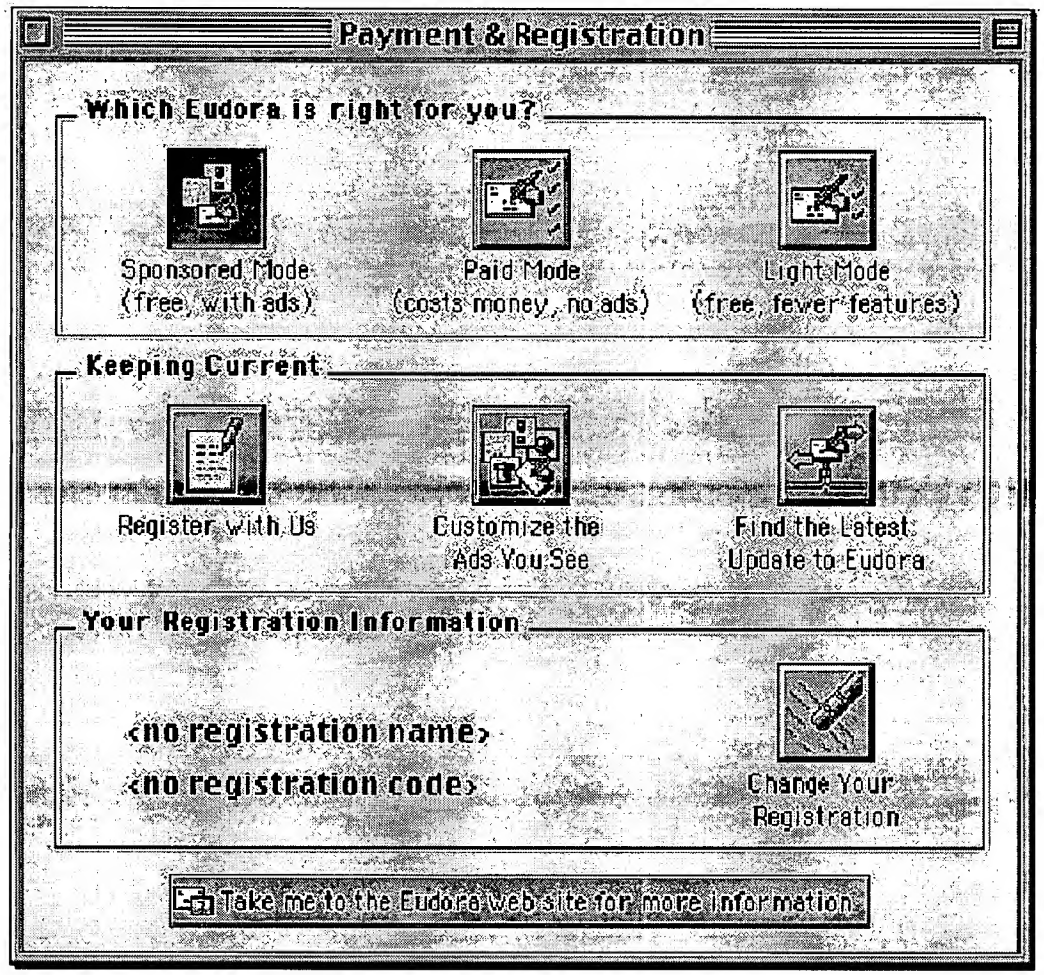


Fig. 5B

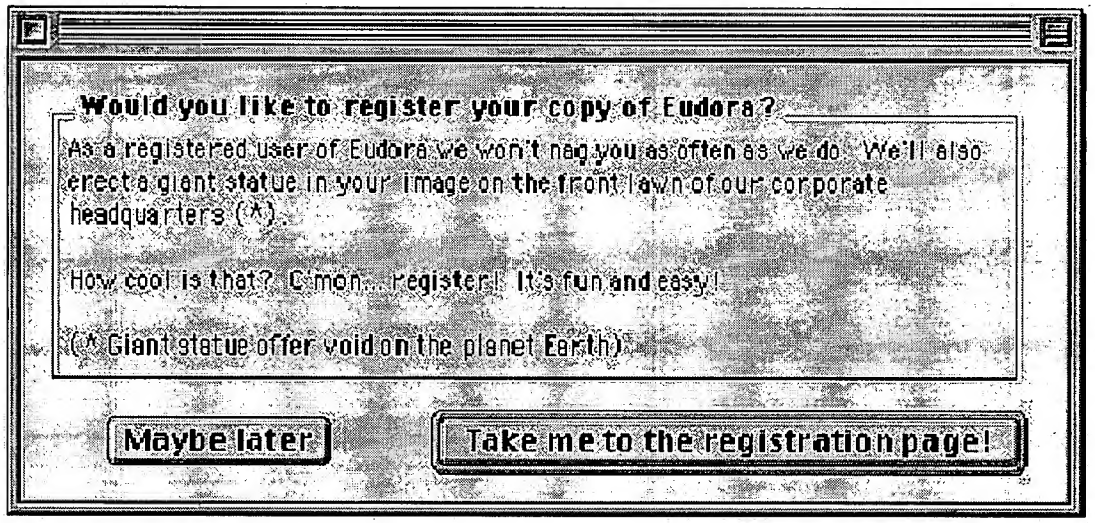


Fig. 5C

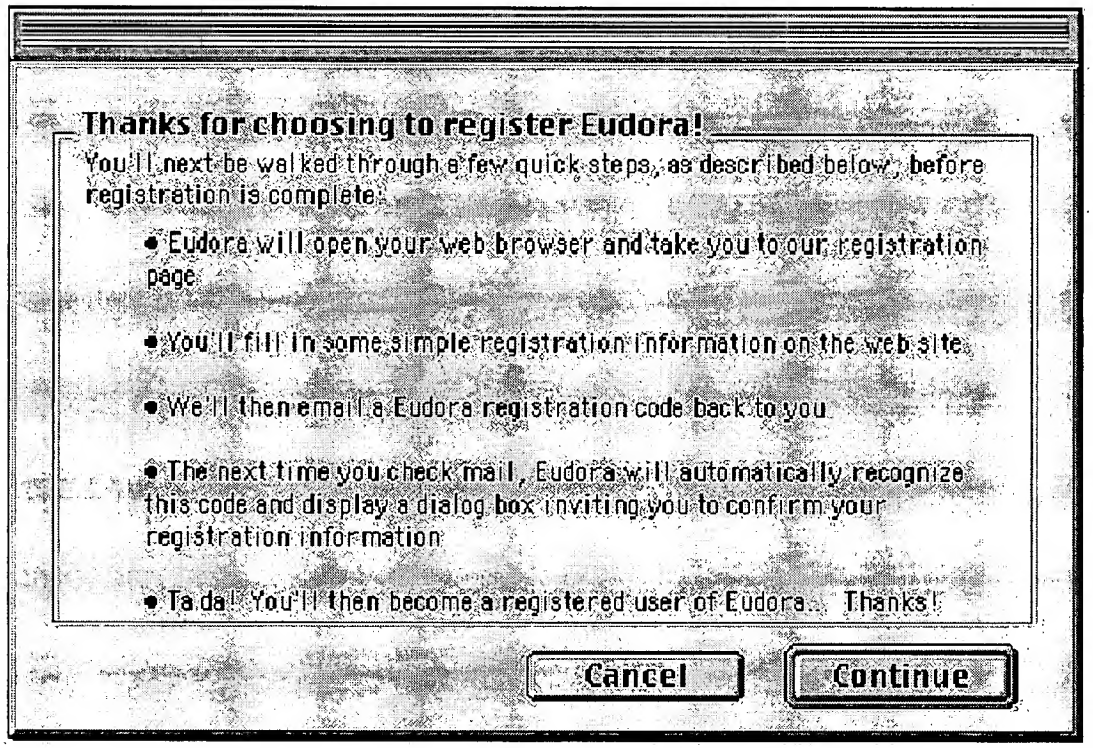


Fig. 5D

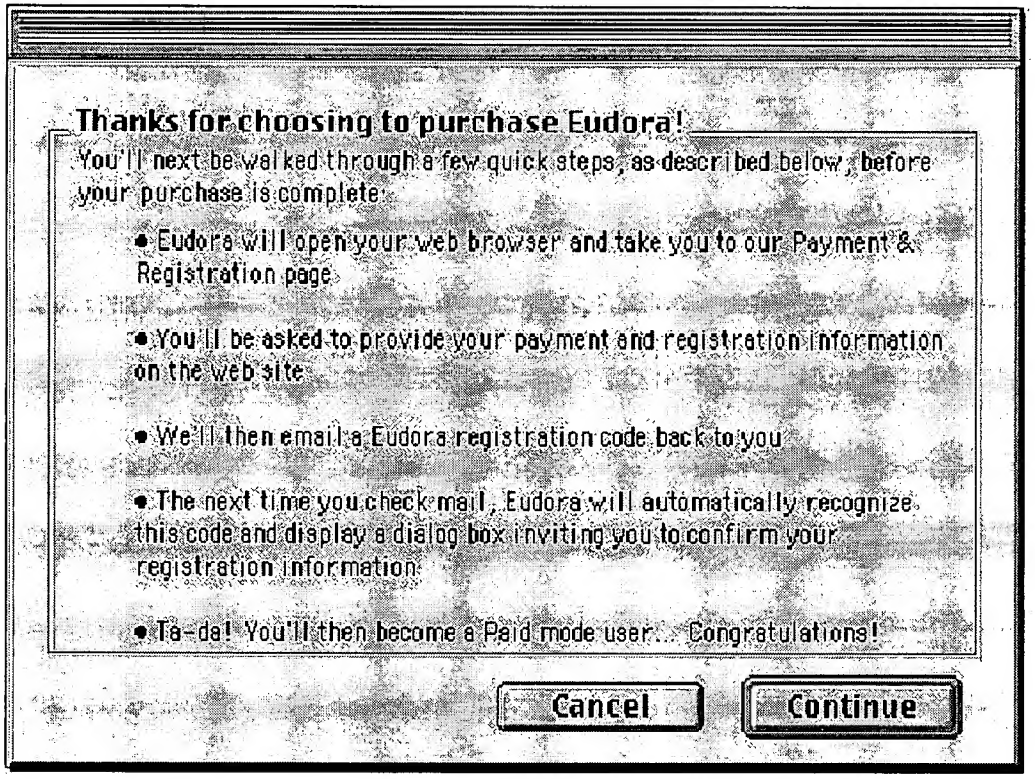


Fig. 5E

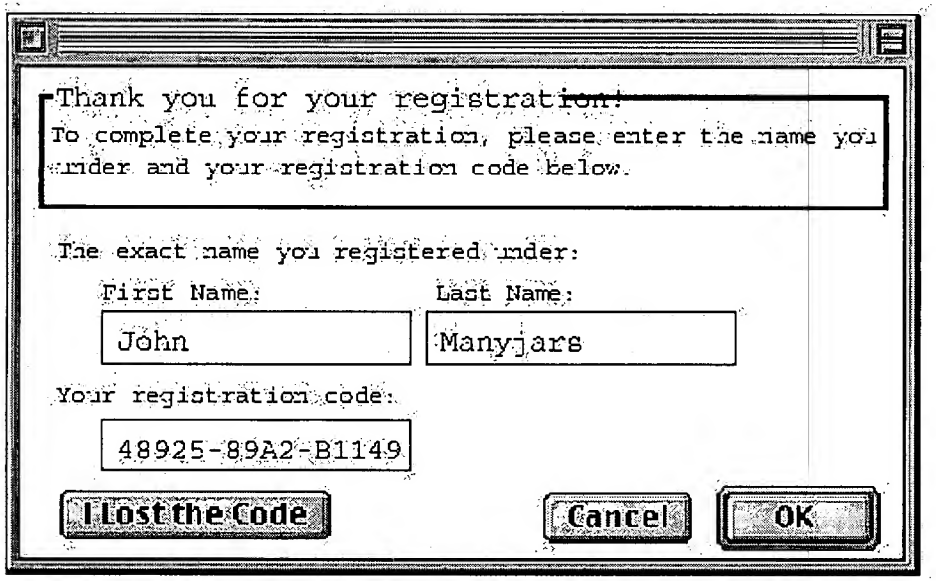

Thank you for your registration!
To complete your registration, please enter the name you
under and your registration code below.
The exact name you registered under:
First Name:
Last Name:
John
Manyjars
Your registration code:
48925-89A2-B1149
I Lost the Code
Cancel
OK

Fig. 5F

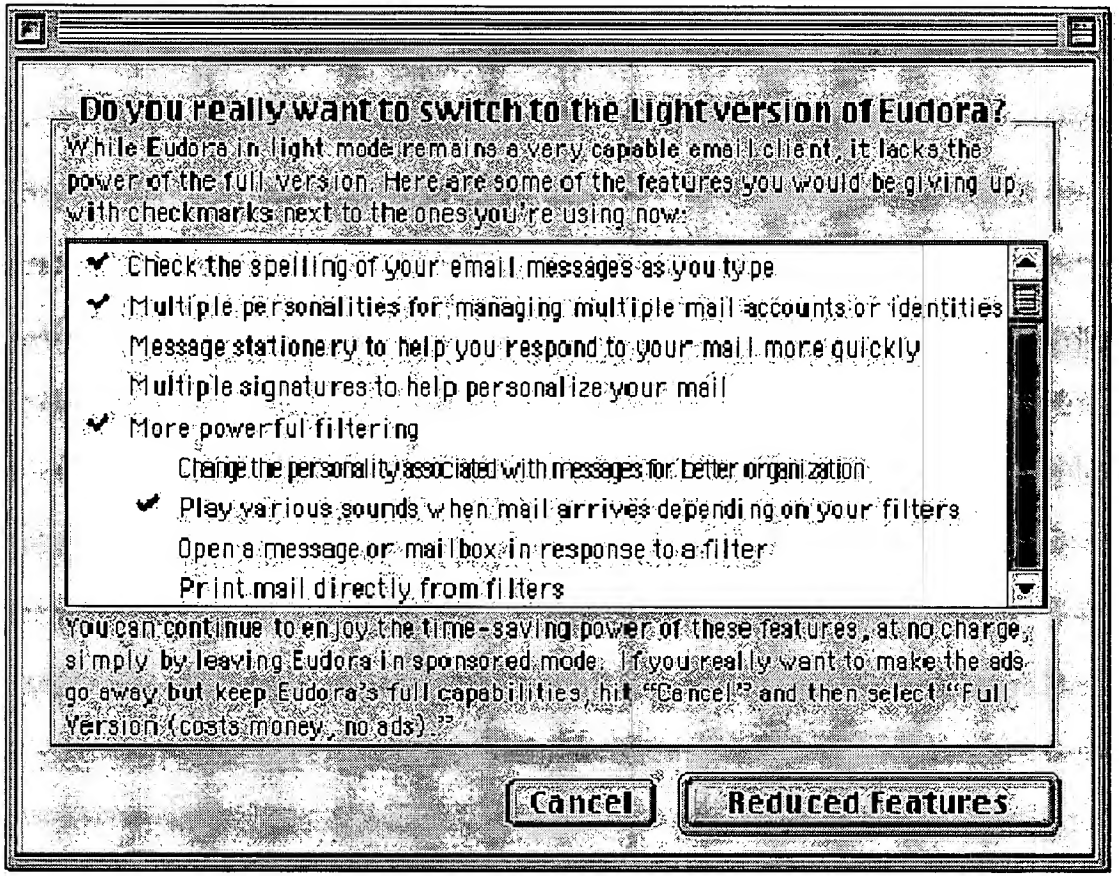

Do you really want to switch to the Light version of Eudora?
While Eudora in light mode remains a very capable email client, it lacks the power of the full version. Here are some of the features you would be giving up, with checkmarks next to the ones you're using now:
Check the spelling of your email messages as you type
Multiple personalities for managing multiple mail accounts or identities
Message stationery to help you respond to your mail more quickly
Multiple signatures to help personalize your mail
More powerful filtering
Change the personality associated with messages for better organization
Play various sounds when mail arrives depending on your filters
Open a message or mailbox in response to a filter
Print mail directly from filters
You can continue to enjoy the time-saving power of these features, at no charge, simply by leaving Eudora in sponsored mode. If you really want to make the ads go away but keep Eudora's full capabilities, hit "Cancel" and then select "Full Version (costs money, no ads)."
Cancel
Reduced Features

Fig. 5G

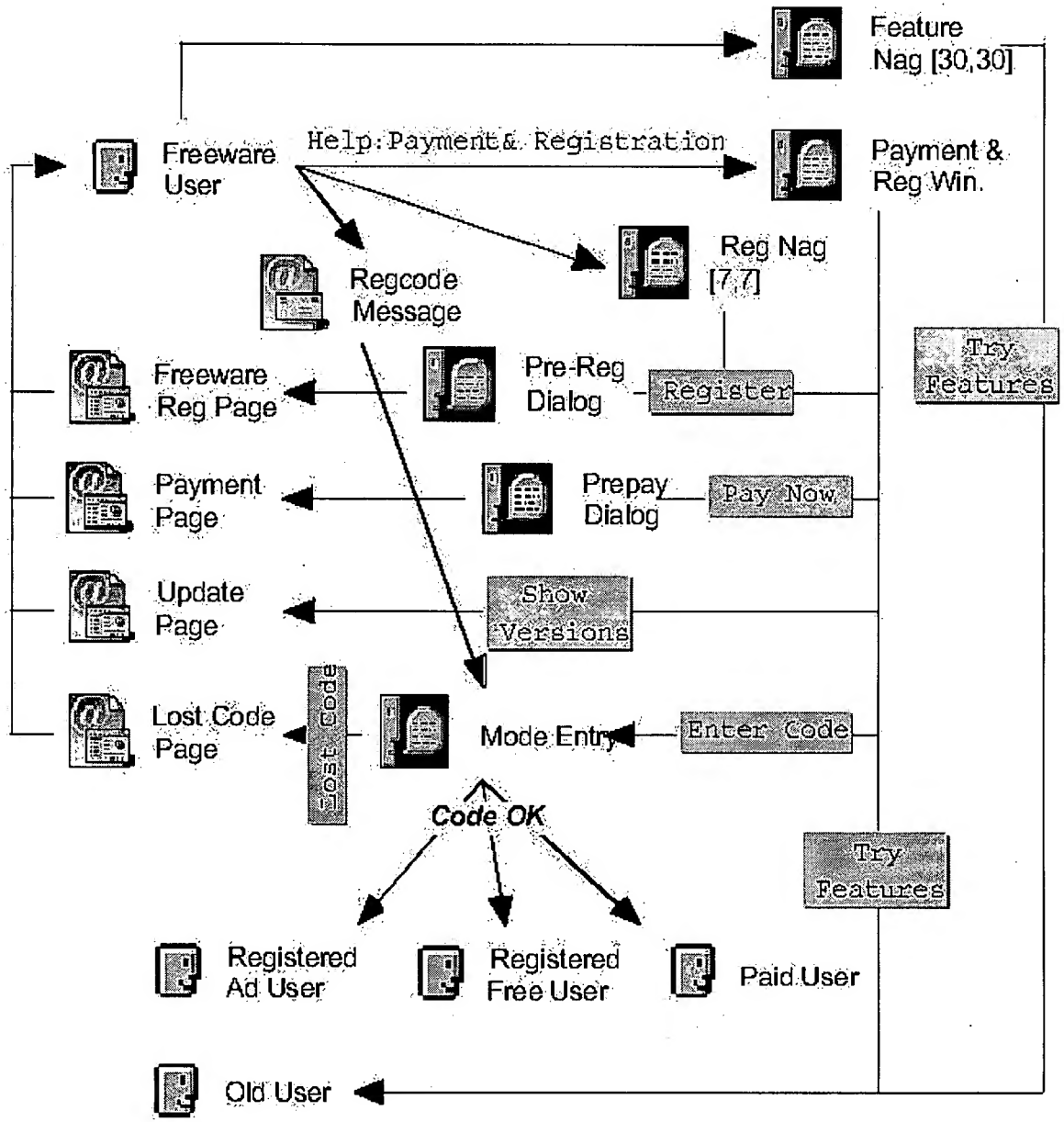

Feature
Nag [30,30]
Freeware
User
Help:Payment& Registration
Payment &
Reg Win.
Reg Nag
[7,7]
Regcode
Message
Try
Features
Freeware
Reg Page
Pre-Reg
Dialog
Register
Payment
Page
Prepay
Dialog
Pay Now
Update
Page
Show
Versions
Lost Code
Lost Code
Page
Mode Entry
Enter Code
Code OK
Try
Features
Registered
Ad User
Registered
Free User
Paid User
Old User

Fig. 6A

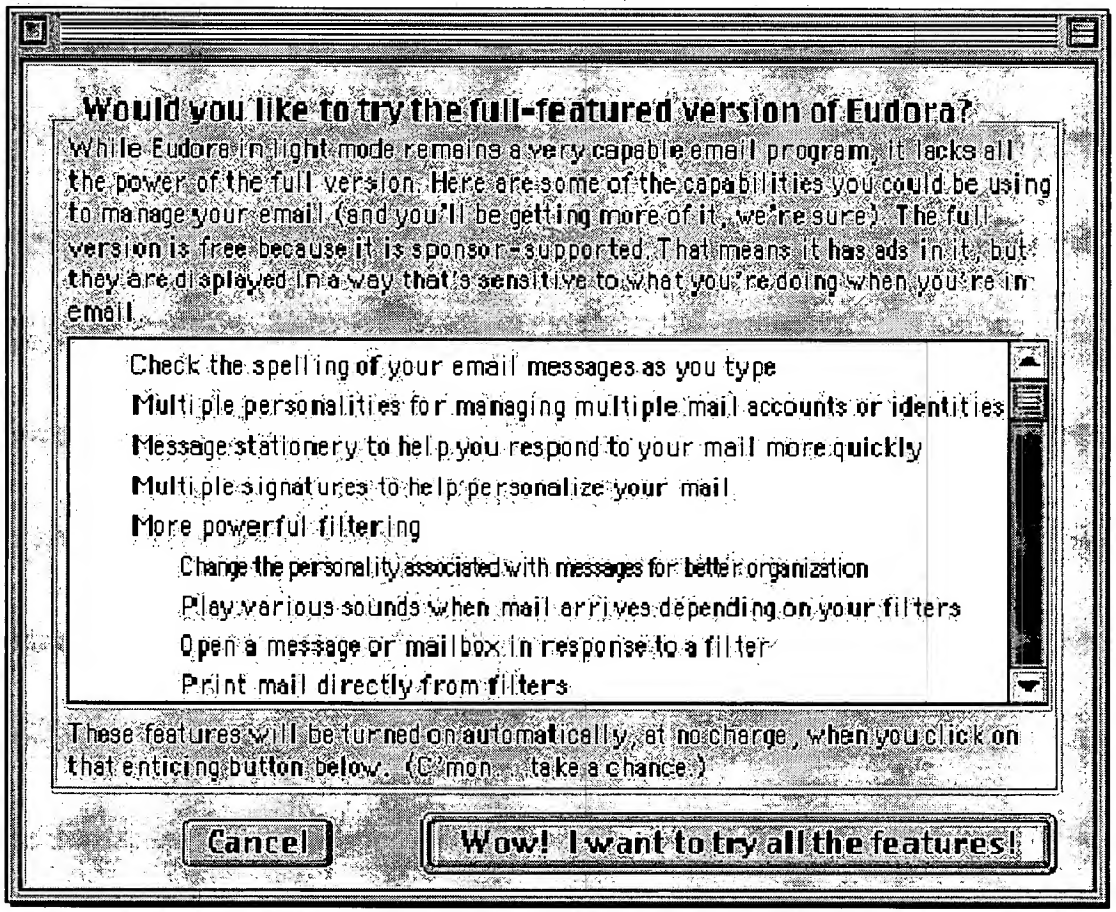


Fig. 6B

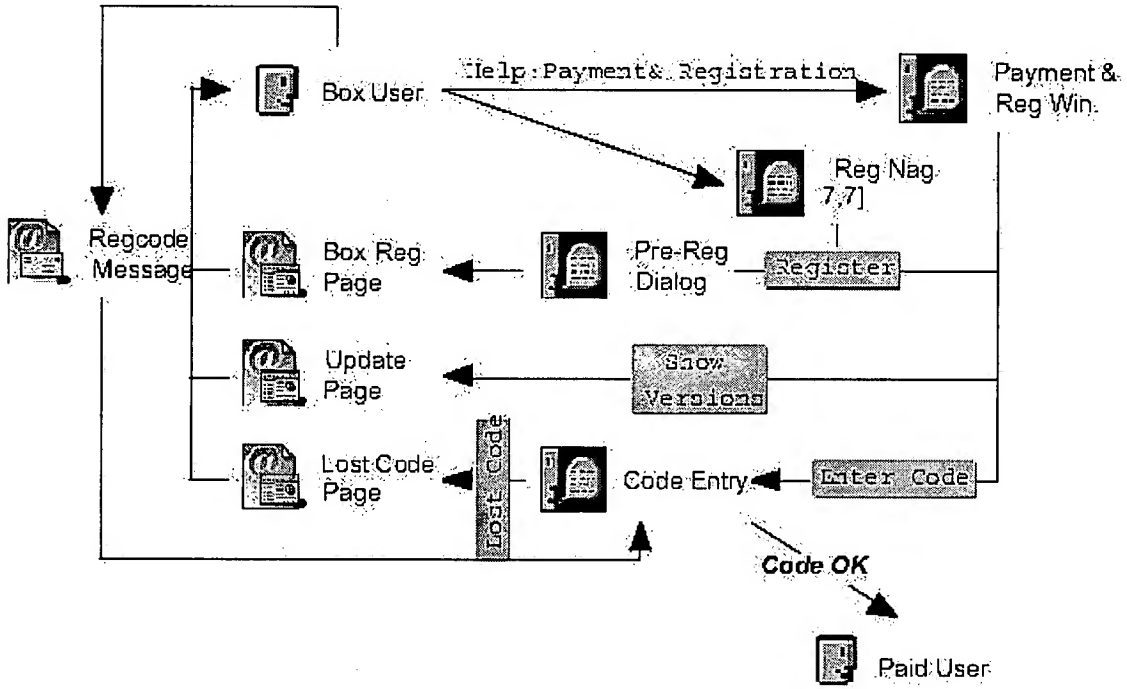

Box User
Help : Payment & Registration
Payment & Reg Win
Reg Nag 7.7]
Regcode Message
Box Reg Page
Pre-Reg Dialog
Register
Update Page
Show Versions
Lost Code Page
Lost Code
Code Entry
Enter Code
Code OK
Paid User

Fig. 8

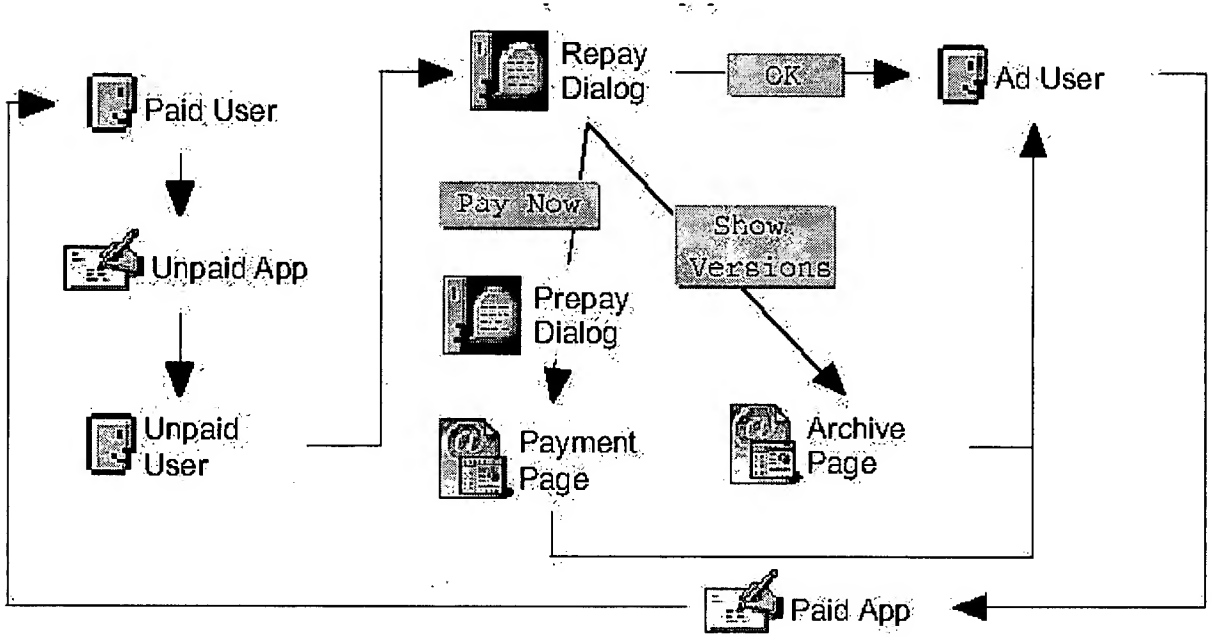


Fig. 9

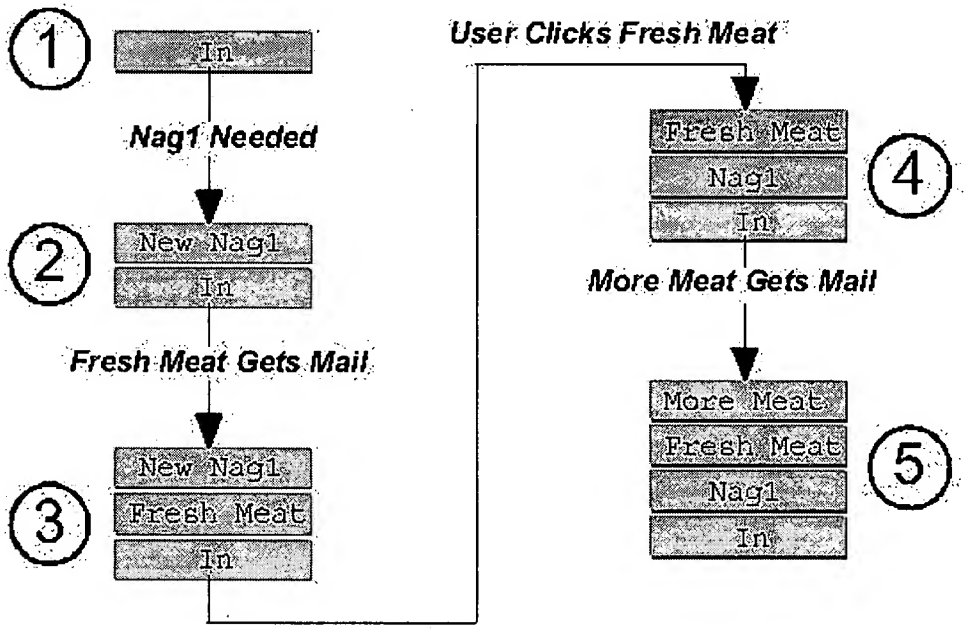


Fig. 10

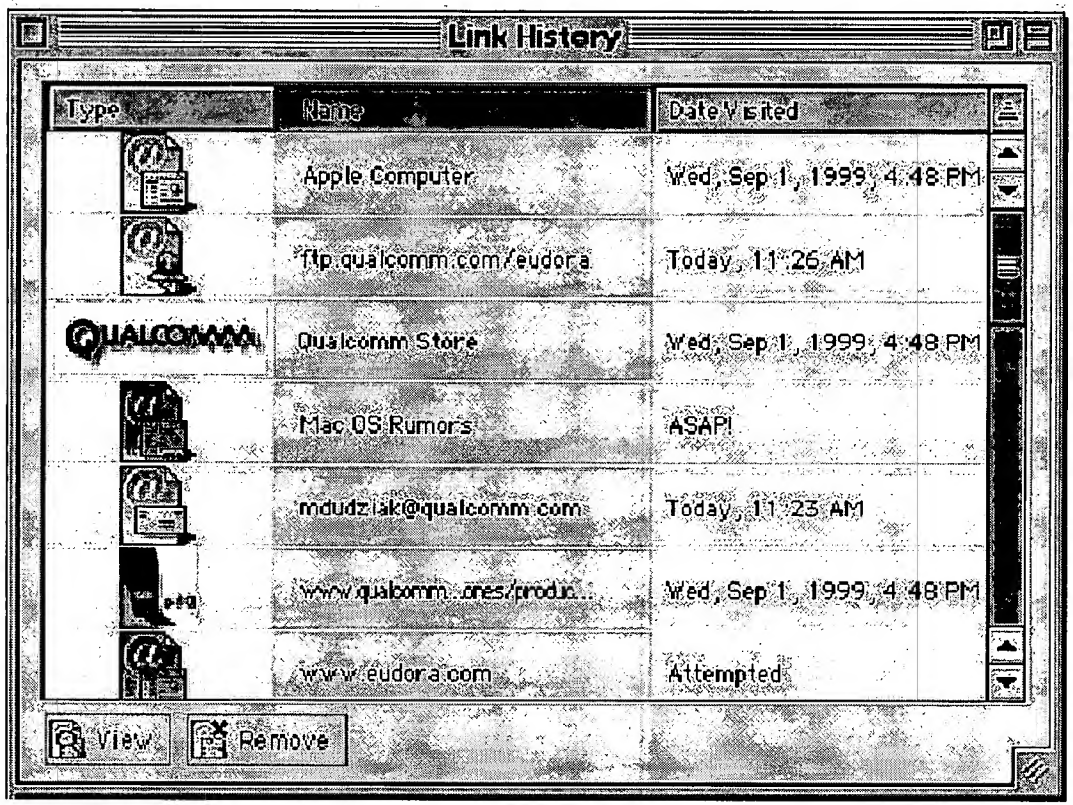


Fig. 12A

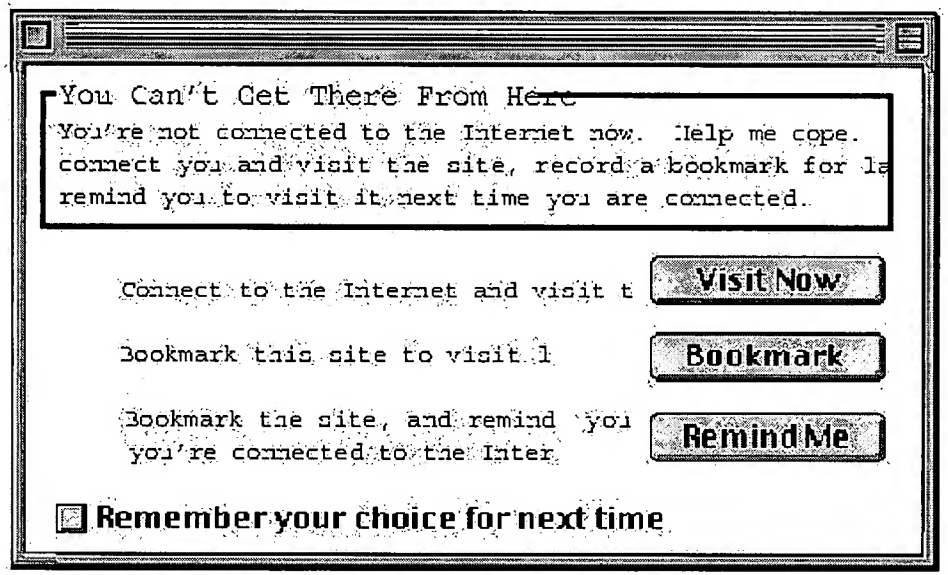


Fig. 12B

Assumptions	
Average Connect Speed, Kbps	28.8
Average Ad Size, Kbytes	9.3
Number of Users	8,000,000
Number of Hours Running/Subscriber	2
Number Validchecks Per User Per Hour	2
Playlist Entry Size, Bytes	500

Fig. 13A

Implications							
# of New Ads Per User Per Day	# Seconds Downloading Ads	# Seconds Added Per Check	8M Users Ad Bandwidth, Mbps	Ad Mbps / 100,000 users	Avg Size Connection, 1000's	8M Users Playlist Bandwidth, Mbps	Playlist Mbps / 100,000 users
10	26	6	67	0.8	2.4	4	0.0
15	39	10	101	1.3	3.6	5	0.1
20	52	13	135	1.7	4.8	7	0.1
25	65	16	168	2.1	6.0	9	0.1
30	78	19	202	2.5	7.2	11	0.1
35	90	23	235	2.9	8.4	12	0.2

Fig. 13B

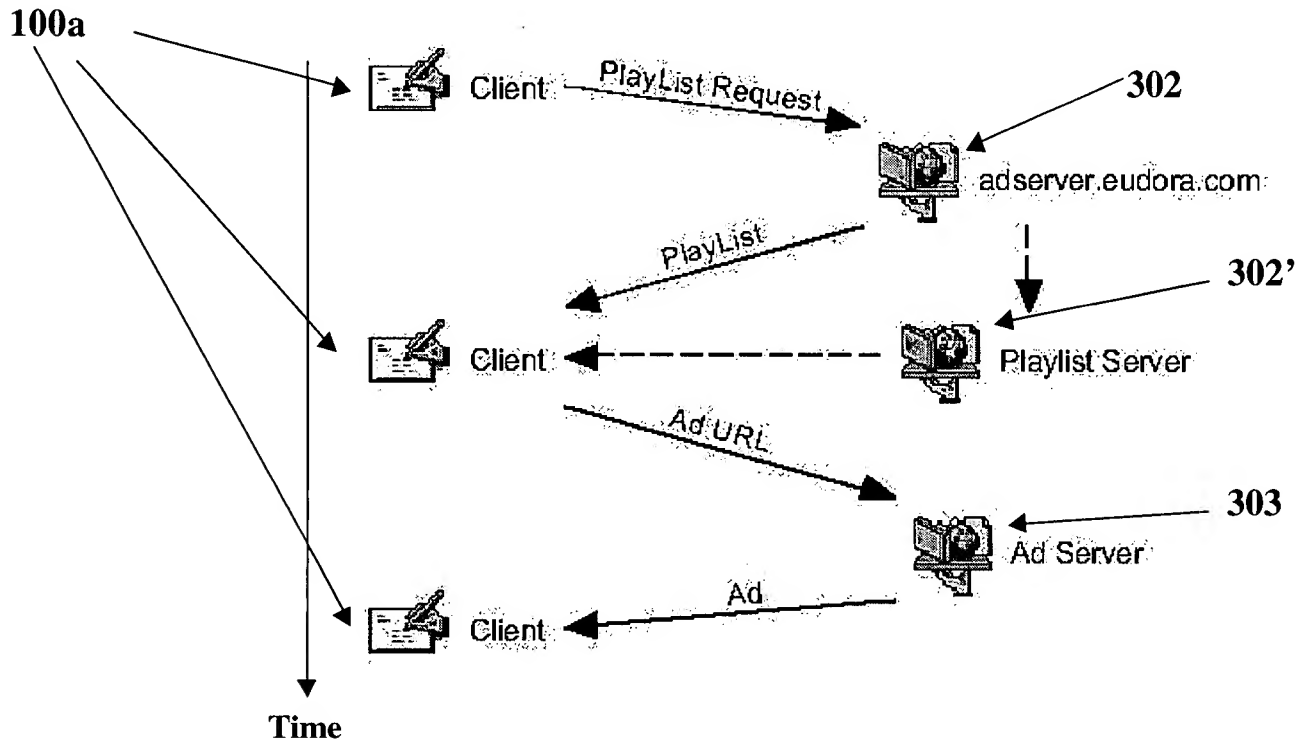


Fig. 14

```
////////////////////////////////////
// Main ad scheduler
ScheduleMain
{
// Has a new day dawned?
Do CheckForNewDay
// Are we are within the current ad's showFor?
if ( ad.thisShowTime < ad.showFor )
{
// there is nothing to be done
return
}
// At this point, we know that we need a new ad
// Perform housekeeping tasks on the old one
Do AdEndBookkeeping
// Pop out of a block if all ads on par
if ( block isn't all playlists )
{
find ad with minimum ad.numberShown
if ( ad.numberShown >= blockGoal )
set block to all playlists
}
// If we are over our quota of regular ads for the day,
// look for a runout
if ( adFaceTimeToday > faceTimeQuota )
{
Do ShowARunout
}
else
{
Do ShowARegularAd
}
}
// end ad schedule main
```

Fig. 15A

```
////////////////////////////////////
// We must perform certain tasks when the calendar day
changes.
CheckForNewDay
{if ( the calendar day has changed )
{
// Perform housekeeping tasks on the ad currently showing
Do StopShowingCurrentAd
// Runout ads are charged for a full showFor if they've been
shown
// at all on a given day. Charge any runout ads if they've
been
// shown at all.
for runout ads
{
if ( ad.thisShowTime > 0 )
{
ad.totalTimeShown += ad.showFor
ad.thisShowTime = 0
}
}
// Now, reset the counters for all ads to reflect the fact
that
// a new day has dawned.
for all ads
{
ad.numberShownToday = 0
}
// Record yesterday's facetime
// Might not literally be yesterday, be sure to use
// whatever day the app was last run on
set old current day's facetime to totalFaceTimeToday
// and reset our global regular ad facetime counter
adFaceTimeToday = 0
totalFaceTimeToday = 0
// if we were in a block, back out
set block to all playlists
}
}
// end CheckForNewDay
```

Fig. 15B

```
////////////////////////////////////
// This function shows a runout ad, and if it
// can't find one, goes to a rerun
ShowARunout
{
for runout ads
{
// has the ad been flushed?
if ( ad.flushed )
try next ad
// are we done showing this runout today?
if ( ad.numberShownToday > ad.dayMax )
try next ad // this one's used up for the day
// are we done showing this runout for ever and ever?
if ( ad.shownFor > ad.showForMax )
try next runout ad // this one's used up forever
// are we between the ad's start and end dates?
if ( ad.startDate < the current date < ad.endDate )
try next runout ad
// the ad is not supposed to run today
// do we actually HAVE the ad?
if ( ad has not been downloaded )
{
ask for ad to be downloaded
try next ad
}
// ok, we believe we should show this runout
// we are now in runout state
Do ShowAnAd
return
}
// if we haven't found a runout ad, we will go to "rerun"
state
Do ShowARerun
}
// end ShowARunout
```

Fig. 15C

```
////////////////////////////////////
// Rerun state. Look for a regular ad to rerun
ShowARerun
{
for regular ads [ in current block ]
{
// has the ad been flushed?
if ( ad.flushed )
try next ad
// is this ad recent enough to rerun?
if ( ad.lastShownDate is older than returnInterval )
try next ad
// this one is too old to rerun
// if in block, show ads only if it's their "turn"
if ( ad.numberShownToday >= blockGoal )
try next ad // need to find a friend in this block
// are we between the ad's start and end dates?
if ( ad.startDate < the current date < ad.endDate )
try next ad
// the ad is not supposed to run today
// do we actually HAVE the ad?
if ( ad has not been downloaded )
{
ask for ad to be downloaded
try next ad
}
// ok, at this point we can show this ad, but because
// we're in rerun, we don't keep the books
Do ShowAnAd
return
}
// if we get here, we have no ads to show. Punt.
return
}
// end ShowARerun
```

Fig. 15D

```
////////////////////////////////////
// Show a regular ad
ShowARegularAd
{
for regular ads [ in current block ]
{
// has the ad been flushed?
if ( ad.flushed )
try next ad
// are we done showing this ad today?
if ( ad.numberShownToday > ad.dayMax )
try next ad // this one's used up for the day
// if in block, show ads only if it's their "turn"
if ( ad.numberShownToday >= blockGoal )
try next ad // need to find a friend in this block
// are we done showing this ad for ever and ever?
if ( ad.shownFor > ad.showForMax )
try next ad // this one's used up forever
// are we between the ad's start and end dates?
if ( ad.startDate < the current date < ad.endDate )
try next ad
// the ad is not supposed to run today
// do we actually HAVE the ad?
if ( ad has not been downloaded )
{
ask for ad to be downloaded
try next ad
}
// ok, we believe we should show this ad
// we are now in regular state
Do ShowAnAd
return
}
// If we get here, we have failed to find a regular
// ad. Go to runout
Do ShowARunout
}
// end ShowARegularAd
```

Fig. 15E

```
////////////////////////////////////
// Perform necessary housekeeping when we're taking
// down an ad
AdEndBookkeeping
{
// In rerun state, we don't do any bookkeeping
if ( in RerunState )
return
// Account for at most ad.showFor seconds, provided
// we've shown the ad for at least ad.showFor seconds
// Note that this means we don't charge for time beyond
// ad.showFor seconds, which is important
if ( ad.thisShowTime >= ad.showFor )
{
ad.numberShownToday += ad.showFor
ad.shownFor++
// we do NOT reset thisShowTime here, we do it in
// AdStartBookkeeping. It actually doesn't matter where
// we do it, provided we are careful NOT to do it for
// runout ads.
}
}
// end AdEndBookkeeping
```

Fig. 15F

```
////////////////////////////////////
// Show an ad, including bookkeeping and block handling
ShowAnAd
{
// If the ad is in a block, notice that
if ( it's in a "block" playlist )
{
if ( not currently in a block )
{
find ad in block with minimum numberShown
make that our ad
set blockGoal to minimum numberShown+1
}
set current block to this playlist
}
// now do bookkeeping
Do AdStartBookkeeping
// and actually show it
Do DisplayThatAd
}
```

Fig. 15G

```
////////////////////////////////////
// Perform housekeeping when we put up an ad
AdStartBookkeeping
{
// In rerun state, we don't do any bookkeeping
if ( in RerunState )
return
// For regular ads
if ( it's a regular ad )
{
ad.thisShowTime = 0
ad.lastShownDate = now
}
}
// end AdStartBookkeeping
```


Fig. 15H

Persistent Ads	
PlayList Request	
faceTime	Used to determine how much advertising to send to client
faceTimeLeft	Not used
PlayList Response ClientInfo	
reqInterval	Relatively large: one or more days
flush	Used. Single playlist completely specifies list of ads client should have
PlayList Response Scheduling Parameters	
showForMax	Not used

Fig. 16A

Short-Lived Ads	
PlayList Request	
faceTime	Not used
faceTimeLeft	Used to determine how many ads client should receive
PlayList Response ClientInfo	
reqInterval	Not used. Instead, client requests new playlist whenever ads "run low".
flush	Not used
PlayList Response Scheduling Parameters	
showForMax	Used to determine how long an ad runs

Fig. 16B

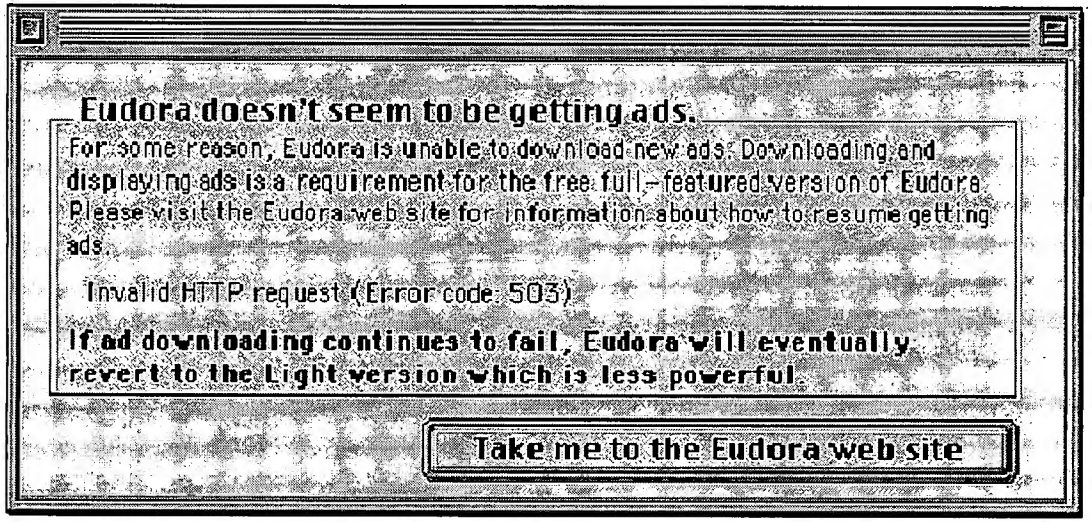


Fig. 17A

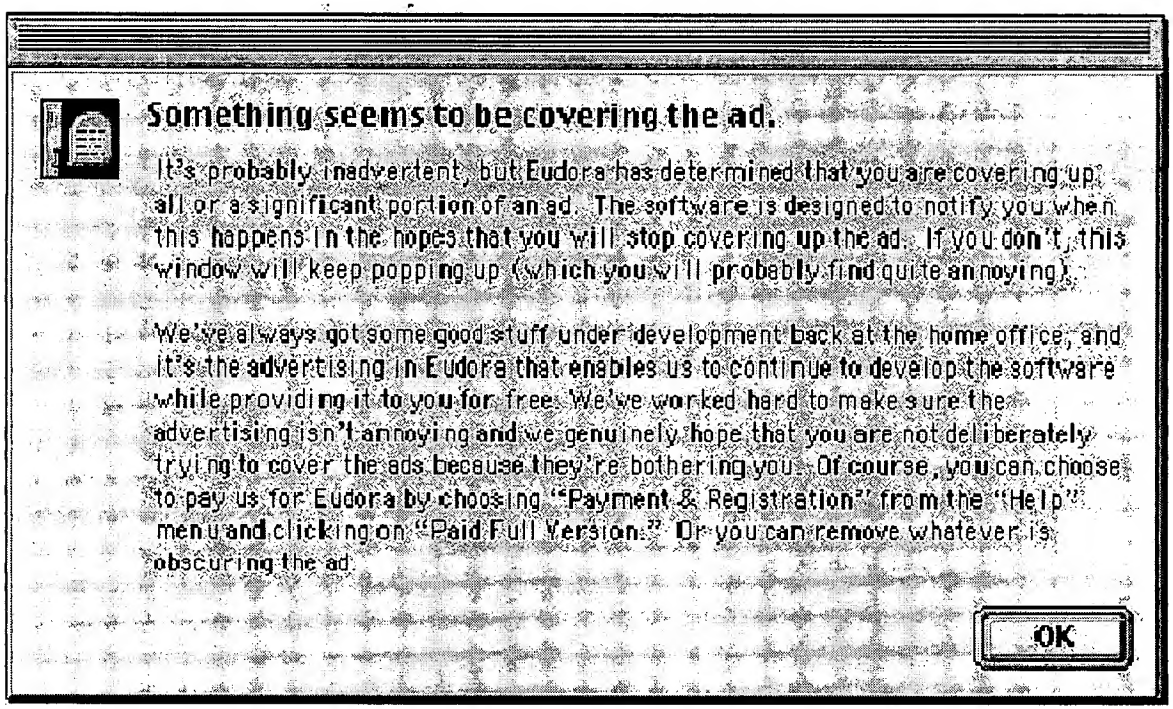


Fig. 17B

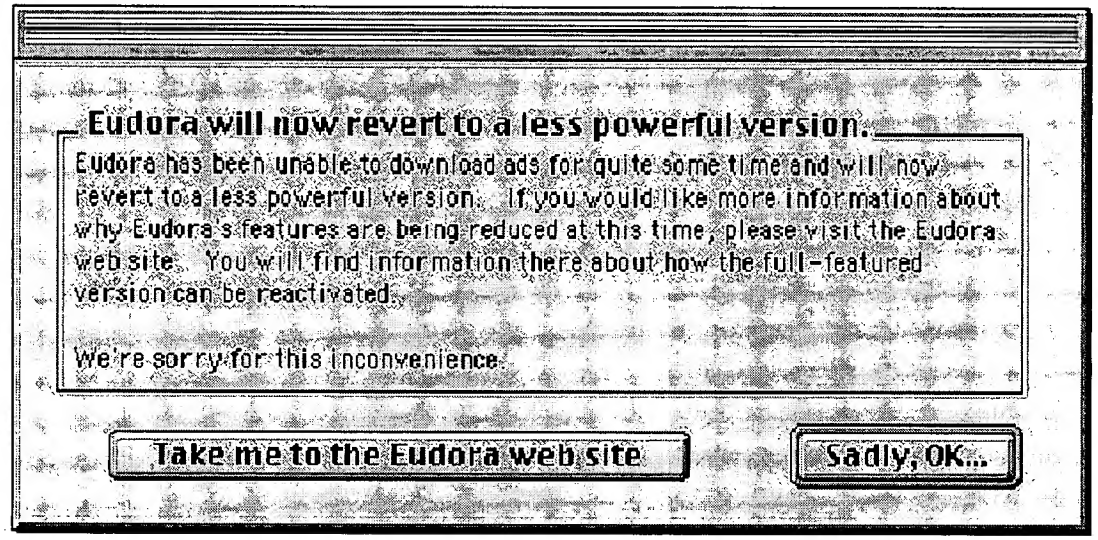
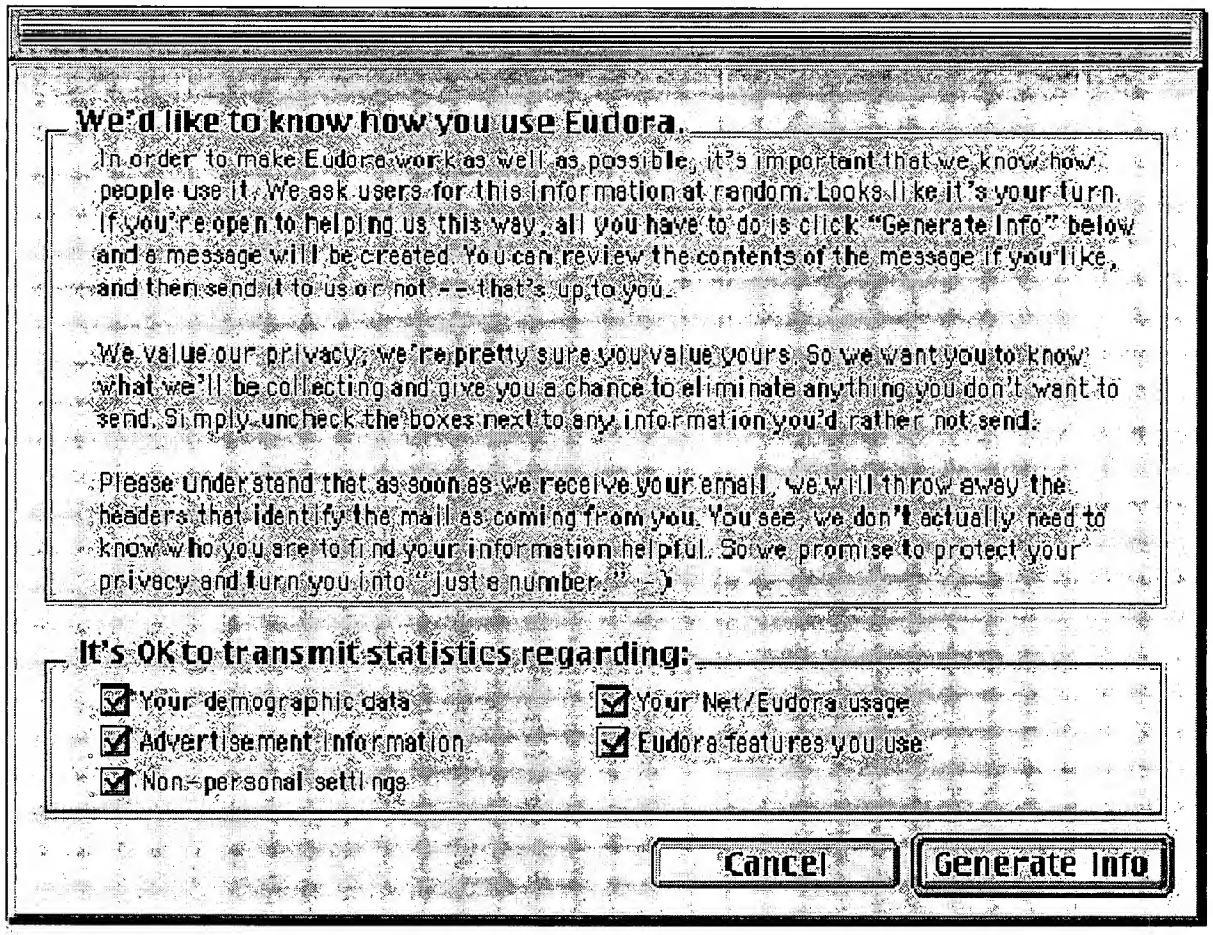


Fig. 17C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In order to make Eudora work as well as possible, it's important that we know how people use it. We ask users for this information at random. Looks like it's your turn. If you're open to helping us this way, all you have to do is click "Generate Info" below and a message will be created. You can review the contents of the message if you like, and then send it to us or not -- that's up to you.
We value our privacy; we're pretty sure you value yours. So we want you to know what we'll be collecting and give you a chance to eliminate anything you don't want to send. Simply uncheck the boxes next to any information you'd rather not send.
Please understand that as soon as we receive your email, we will throw away the headers that identify the mail as coming from you. You see, we don't actually need to know who you are to find your information helpful. So we promise to protect your privacy and turn you into "just a number." ;-)
It's OK to transmit statistics regarding:
Your demographic data
Your Net/Eudora usage
Advertisement information
Eudora features you use
Non-personal settings
Cancel
Generate Info

Fig. 18A

Page	Applicable Query Parts																
	action	platform	product	version	distributorID	mode	realname	email	regfirst	reglast	regcode	oldReg	regLevel	profile	url	adid	topic
Payment	pay	X	X	X	X	X	X	X	X	X	X	X					
Freeware Registratio	register-free	X	X	X	X	X	X	X	X	X	X						
Adware Registration	register-ad	X	X	X	X	X	X	X	X	X	X						
Box Registrations	register-box	X	X	X	X	X	X	X	X	X	X						
Lost Code	lostcode	X	X	X	X	X	X	X	X	X	X	X					
Update	update	X	X	X	X	X							X				
Pro Update	proupdate	X	X	X	X	X							X				
Archived	archived	X	X	X	X	X											
Profile	profile	X	X	X	X	X	X	X						X			
Introduction	intro																
Support	n/a	X	X	X	X	X	X	X	X	X	X	X					
QuickTime Missing	support	X	X	X	X												no-qt
Ad Failure	support	X	X	X	X												ad-fail
Tutorial	support	X	X	X	X												tutor
FAQ	support	X	X	X	X												faq
Light Users	support	X	X	X	X												light
Search Support	support	X	X	X	X												search
Newsgroups	support	X	X	X	X												usenet

Fig. 19

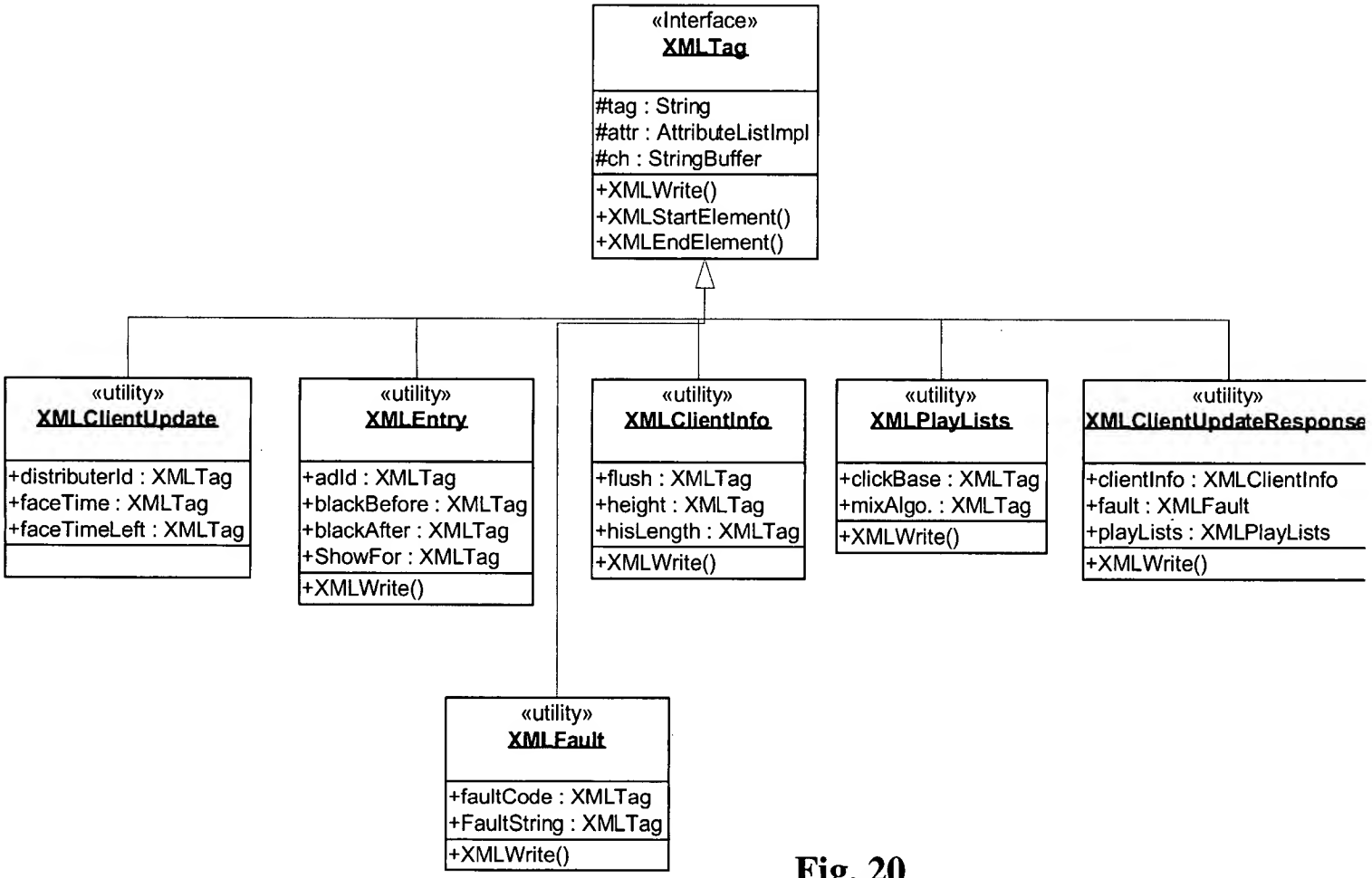
«Interface»
XMLTag
#tag : String
#attr : AttributeListImpl
#ch : StringBuffer
+XMLWrite()
+XMLStartElement()
+XMLEndElement()
«utility»
XMLClientUpdate
+distributerId : XMLTag
+faceTime : XMLTag
+faceTimeLeft : XMLTag
«utility»
XMLEntry
+adId : XMLTag
+blackBefore : XMLTag
+blackAfter : XMLTag
+ShowFor : XMLTag
+XMLWrite()
«utility»
XMLClientInfo
+flush : XMLTag
+height : XMLTag
+hisLength : XMLTag
+XMLWrite()
«utility»
XMLPlayLists
+clickBase : XMLTag
+mixAlgo. : XMLTag
+XMLWrite()
«utility»
XMLClientUpdateResponse
+clientInfo : XMLClientInfo
+fault : XMLFault
+playLists : XMLPlayLists
+XMLWrite()
«utility»
XMLFault
+faultCode : XMLTag
+FaultString : XMLTag
+XMLWrite()

Fig. 20

- The list of available ads advantageously can be built from the following query:

ads = dbCon.prepareStatement("SELECT * FROM ads WHERE StartDate <= today AND endDate >= today + 30 AND AdType = "I" AND AdStatus = "A" AND ImpressionsServed < Impressions ORDERD BY ImpressionsServed ASC);

run out ads = dbCon.prepareStatement("SELECT * FROM ads WHERE StartDate <= today AND endDate >= today + 30 AND AdType = "R" AND AdStatus = "A" AND ImpressionsServed < Impressions ORDERD BY ImpressionsServed ASC);

- The time required to deliver the ads advantageously can be calculated in the following manner.

face time left for today [seconds] = faceTime[today] – faceTimeUsedToday

(Comment: Face time left for today is the number of secondes the servlet can use to deliver special ads today.)

predict face time [seconds] = SUM(faceTime[tomorrow] , faceTime[tomorrow + 1] , ... faceTime[tomorrow + reqInterval])

(Comment: Predict face time is the number of seconds the servlet predicts the user is going to have.)

goal show time left [seconds] = predict face time – faceTimeLeft

(Comment: Goal show time left is the number of seconds that the software provider needs to fill with ads.)

Fig. 21A

```
% Targeting
        while (face time left for today ) {
                if ad is not in the history {
                        select ad [according to target = today]
                        face time left for today -= ad.showFor
                }
                next ad
}

while (Goal show time left ) {
        if ad is not in the history {
                select ad [according to target]
                goal show time left -= ad.showFor
        }
        next ad
}


Default values:
        reqInterval = 1 day.
        facetime = 30 minutes
        faceTimeQuota is ?
        histLength = 31 days
```

Fig. 21B

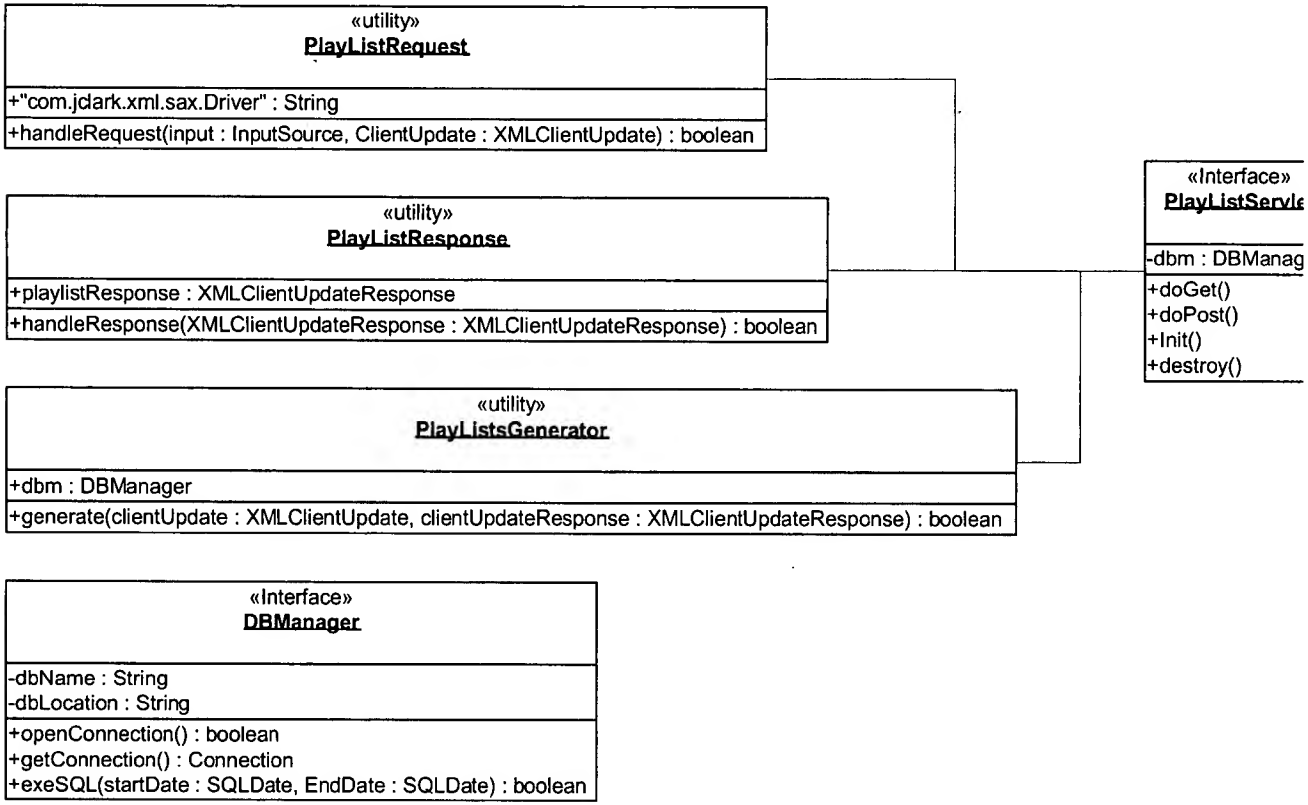
«utility»
PlayListRequest
+"com.jclark.xml.sax.Driver" : String
+handleRequest(input : InputSource, ClientUpdate : XMLClientUpdate) : boolean
«utility»
PlayListResponse
+playlistResponse : XMLClientUpdateResponse
+handleResponse(XMLClientUpdateResponse : XMLClientUpdateResponse) : boolean
«utility»
PlayListsGenerator
+dbm : DBManager
+generate(clientUpdate : XMLClientUpdate, clientUpdateResponse : XMLClientUpdateResponse) : boolean
«Interface»
DBManager
-dbName : String
-dbLocation : String
+openConnection() : boolean
+getConnection() : Connection
+exeSQL(startDate : SQLDate, EndDate : SQLDate) : boolean
«Interface»
-dbm : DBManag
+doGet()
+doPost()
+Init()
+destroy()

Fig. 22

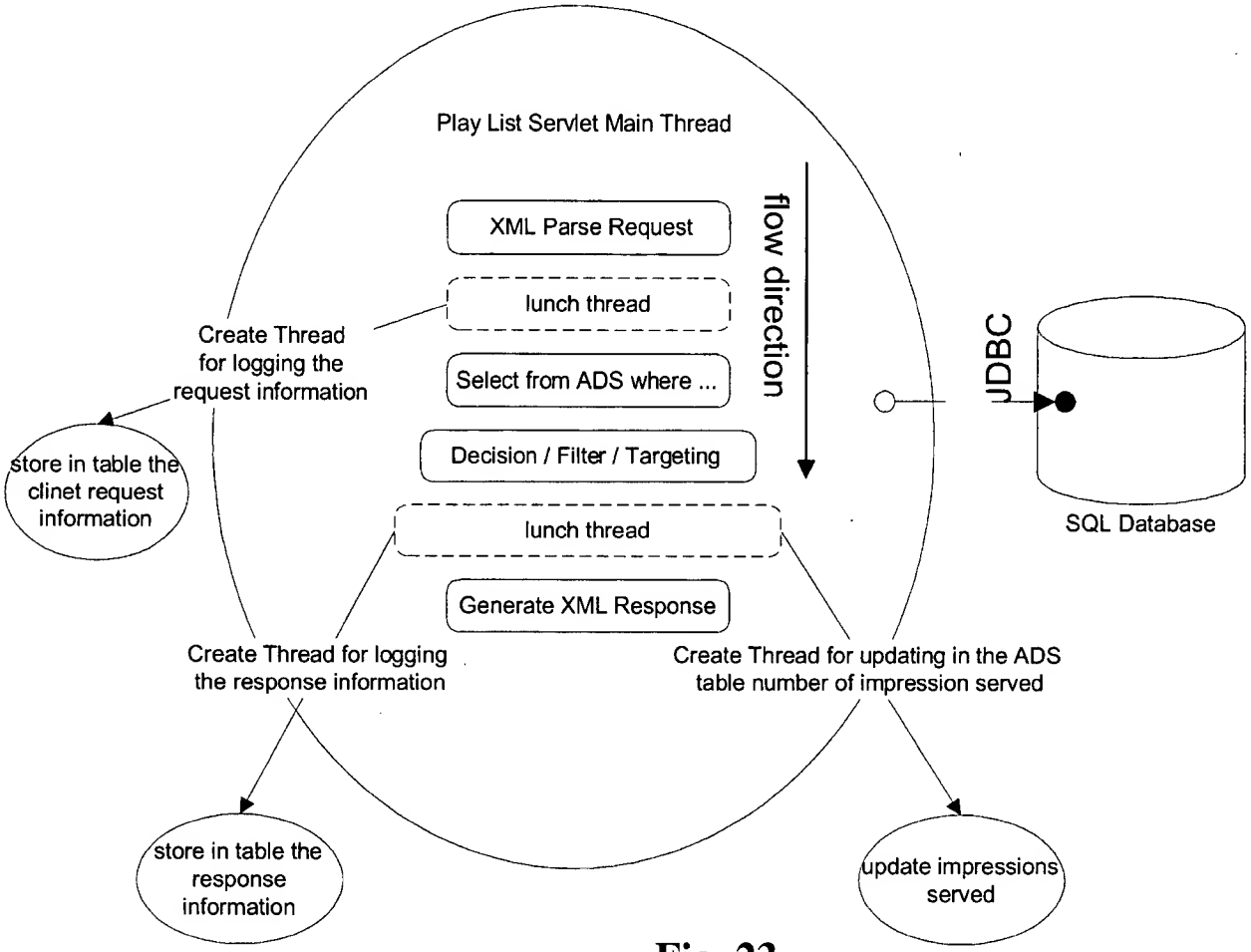
Play List Servlet Main Thread
XML Parse Request
lunch thread
Select from ADS where ...
Decision / Filter / Targeting
lunch thread
Generate XML Response
flow direction
Create Thread for logging the request information
store in table the clinet request information
Create Thread for logging the response information
store in table the response information
Create Thread for updating in the ADS table number of impression served
update impressions served
JDBC
SQL Database

Fig. 23